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Title : The Food Preferences and Foraging Activity of Killer Whales, *Orcinus orca*, at Avacha Gulf, Kamchatka, Russia

Category : Ecology

Student :

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Abstract : As part of a long-term research project, we investigated the food preferences of killer whales, *Orcinus orca*, at Avacha Gulf, Kamchatka, in August and September 2000-2002. We analyzed 111 observations of foraging animals - 73.8 hours in total. A theodolite was used to mark the spots where foraging animals were observed. The data were processed using Pythagoras (Gailey and Ortega 2000). The calculated geographical points were analyzed using the Kernel method to show the distribution of the areas utilised by killer whales and prey. Areas where foraging is most probable (95%) were verified and mapped for connection with depths on existing maps with known fish distribution. According to published information, this area is known to be feeding grounds for Atka mackerel (*Pleurogrammus monopterygius*), with adult females, young males and subadults of both sexes. In addition, *Hexagrammos lagocephalus*, larger than Atka mackerel, inhabits the same areas of Avacha Gulf and lives in large groups. Prey species composition and distribution were confirmed by surveying local fishermen; our own fishing results demonstrated availability of Atka mackerel and some flatfishes (*Limanda* sp.).

Killer whale foraging activity consisted of "carousel" hunting behavior and non-synchronised dives by individual whales of a group. The duration of foraging activity varied: carousel feeding lasted 1-25 minutes (mean = 7; n = 15) and non-synchronised individual diving lasted 2 - 210 minutes (mean = 45; n = 96). During daylight observations the level of killer whale foraging activity increased from 11:00 to 14:00. This may be the increasing activity of daylight-hunting fish species such as *Hexagrammidae* and herring. We have observed no hunting or aggressive killer whale activity directed toward marine mammals (largha seals, sperm and minke whales, Dall's porpoises, Steller sea lions and sea otters), although killer whales are reported attacking these species off Kamchatka.